

Correlation between Affect and Internet Addiction in Undergraduate Medical Students in Mangalore

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Abstract

Background: In the postmodern era, the online environment has become a significant arena for everyday living. Internet itself is a harmless tool but incorrect usage of net might consequently result in disruptions in mental health and social relationships.

Objective: The present study aims to assess the correlation between affect and internet addiction in undergraduate medical students using the Young's Internet Addiction Test and affects scores, using the PANAS scale.

Methods: This cross-sectional study involved 90 subjects (18-20 years of age) selected by random sampling from the first year undergraduate medical student population. Correlation between the internet addiction test scores and the positive/negative affect scores was calculated using the Pearson's correlation coefficient.

Results: A significantly positive correlation was found between the internet addiction test scores and the negative affect scores. A positive correlation was also found between the daily duration of internet use and negative affect scores.

Conclusion: Our study demonstrated a strong correlation between negative affect and internet addiction, highlighting the role of affect in behavioral addictions. This correlation can be made as a useful tool in screening adolescents for internet addiction.

Keywords: Internet addiction; Negative affect; Addiction; Medical students

Introduction

Internet is a new tool evolving into an essential part of everyday life all over the world, especially in college students who demonstrate overindulgence with the internet. In spite of the widely perceived merits of this tool, psychologists and educators are increasingly pointing out the negative impacts of its use relating to a wide range of physical and psychological problems [1-3]. India is no exception to this global trend of excessive internet use. Few studies have explored problematic internet use in Indian context. It is therefore worthwhile investigating the factors that predispose to problematic internet use among college students in the Indian context.

The term "addiction" has generally been associated with substance use. However, with internet access becoming widespread, problematic internet use is increasingly being reported, it has been suggested that excessive internet use could represent addictive behavior with mental health implications [4-6]. An internet addict may typically spend 40-80 hours weekly online [7]. Researchers point that the Internet addiction may be seen in both sexes at earlier ages than other addictions [7]. Prevalence statistics of Internet addiction among adolescents vary widely from 2% [8] to 20% [9] across cultures and societies. Internet addiction is typically characterized by psychomotor agitation, anxiety, craving, loss of control, impairment of function, reduced decision-making ability which might lead to negative impact on academic performance [10]. A series of problems resulting from the misuse of Internet accompanying the excessive use of Internet is a primary attention of researchers all over the world. In fact prior to the publication of the latest DSM-5, there had been some debate as to whether internet addiction should be included as an independent entity. The DSM-5 has included "Internet Gaming Disorder"- a subtype of internet addiction, in section 3 as an area that needed future research before being included in future editions of the DSM [11]. Also, it has been debated whether research should

be directed to generalized internet use or the potentially addictive activities

The term 'affect' refers to the relatively brief feelings that are experienced in response to a particular stimulus or situation. The experience of affect directs the individual for rapid physical responses, and guides behavior to meet a particular need [12]. These feelings have been regarded as adaptive tendencies that are the direct result of situations that hold some evolutionary significance [12]. Affect is thus implicated in a range of concepts relevant to substance use, including positive and negative reinforcement, behavioral motivation, and the regulation of cognition [13]. Evidence from epidemiological and clinical studies has consistently shown a strong association between affective disorders and internet addiction [14]. Individuals with affective psychopathology, such as mood and anxiety disorders, have been shown to demonstrate high rates of comorbid substance use [15]. The comorbidity of substance use with affective dysfunction has been well established and has important theoretical and therapeutic implications. Prior research provides mixed clues about the relationship between affect and internet use. Cross-sectional research reveals positive associations between online social network use and well-being [16], other work reveals the opposite effect [17,18].

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Received January 10, 2014; Accepted February 17, 2014; Published February 28, 2014

Citation: Vidyachathoth, Kodavanji B, Kumar NA, Pai SR (2014) Correlation between Affect and Internet Addiction in Undergraduate Medical Students in Mangalore. J Addict Res Ther 5: 175. doi: 10.4172/2155-6105.1000175

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Young designed the Internet Addiction Test, a widely-used 20-item instrument that has demonstrated good reliability, to screen for Internet addiction [19-21]. The PANAS (positive affect and negative affect schedule) questionnaire has been widely used to assess mood [22,23]. It comprises two mood scales; one that measures positive affect and the other which measures negative affect [23]. The PANAS can show relations between positive and negative affect with both personality states and traits [22,23]. In the present study the participants were given a battery of psychological tests namely young internet addiction test and the PANAS questionnaire to assess the correlation between affect and internet addiction. The present study takes into consideration the state and trait aspect of personality in relation to internet addiction. This study was therefore conducted with the aim of finding out the possible correlation between positive or negative affect and internet addiction in a sample population of undergraduate medical students. This could shed some light on the etiological basis of internet addiction, which represents a behavioral addiction. The ultimate target of the study was to assess if a predictive screening tool could be designed in the context of internet addiction as to prevent the potential problems related to addiction.

Materials and Methods

This cross-sectional study was carried out on undergraduate medical students from Mangalore. Both male and female undergraduate medical students in the age group of 18-20 years, conforming to internet use for the last 6 months or more, were enrolled. A total of 90 student volunteers were thus selected by random sampling by computer generated numbers. The study was approved by the research ethics committee. Subjects were briefed in detail about the nature and purpose of the study. Confidentiality was assured and informed consent was taken. Two questionnaires (English version) were administered to the subjects as described below.

Young's Internet Addiction Test (IAT) [19] is a 20-item scale with a scoring of 0-5 for each question and a total maximum score of 100. Based on the scoring, subjects were classified into normal users (<20), mild (20-49), moderate (50-79) and severe (>79) internet addiction groups covering the degree to which use of internet disrupts everyday life with the score ranging from 20 to 100. The internal reliability of the scale is 0.93. This test assesses the generalized internet addiction. It is constructed from the DSM-IV criteria for pathological gambling.

Positive And Negative Affect Schedule (PANAS) [22,23] is a 20-item questionnaire designed to measure participants' positive and negative moods. This scale consists of 20 words that describe different feelings and emotions. Some assess positive affect and others assess negative affect. Each of these is graded from 1 to 5. A total score is thus calculated individually for positive and negative affect. For positive affect, the maximum total score is 50 (Mean score- 29.7). A higher score represents a higher level of positive affect. For negative affect, the maximum total score is 50 (Mean score-14.8). A higher score represents a higher level of negative affect.

Statistical Analysis

Statistical analysis was done using the SPSS version 16. Mean and standard deviation were calculated for the continuous variables and frequencies, and percentages were computed for the discontinuous variables. Correlation between the variables was assessed by means of the Pearson's correlation coefficient.

Results

Of the 90 internet user subjects, 34(37.8%) were males and

56(62.2%) were females. The mean age of the sample was 18.49 (\pm 0.71) years. The mean duration of internet use was 6.46 (\pm 2.31) years. The average daily time spent on the internet was 2.10 (\pm 1.19) hours. Only leisure internet was considered in this study. Baseline parameters were noted (Table 1).

A highly significant positive correlation was found between duration of internet use in terms of hours per day and negative affect score. The internet addiction test score was also found to positively correlate with the negative affect score (Table 2 and 3).

The comparison of study parameters included the addictive internet user group (Internet addiction test score \geq 50), comprising of 17 subjects, and the non-addictive internet user group (Internet addiction test score <50), comprising of 73 subjects. We found that the mean negative affect score of the addictive internet user group was significantly higher than that of the non-addictive internet user group (Table 4).

Discussion

Excessive Internet use is emerging as a significant negative outcome of internet use, particularly among adolescent and young adults, are at maximal risk in terms of developing problematic internet use [24]. Apart from the academic pressures, boredom and the lack of time and opportunity to pursue hobbies could also contribute to the internet addiction behavior [25]. Medical students appear to be a group of particular concern because of the amount of time they spend on the internet for academic purposes and otherwise, on account of easy access.

The present study is a preliminary research done to assess the

Parameter	Mean	Standard Deviation
Age (years)	18.49	0.71
Years of internet use	6.46	2.31
Hours of internet use per day	2.10	1.19

Table 1: Baseline parameters of internet users: n=90.

Parameter	Mean	Standard Deviation
Internet addiction test score	33.10	16.854
Positive affect score	34.79	06.244
Negative affect score	22.69	06.818

Table 2: Mean scores for internet addiction, positive affect and negative affect of the internet users (n=90).

Parameter		Positive affect score	Negative affect score
Hours per day of internet use	r	-0.044	0.393 ^{**}
	p	0.682	< 0.001
Internet addiction test score	r	-0.086	0.284 ^{**}
	p	0.426	0.007

****Correlation is significant at the 0.01 level (2-tailed)**

Table 3: Correlation between study variables of internet users (n=90).

Internet user group	Negative affect score (Mean)	Standard deviation
Addictive (Internet addiction test score < 50)	26.81	7.414
Non-addictive (Internet addiction test score \geq 50)	21.78	6.384

t=2.773 p=0.007

Table 4: Comparison of the mean negative affect scores between addictive internet users (n=17) and non-addictive internet users (n=73).

predictive value of positive and negative affect in internet addiction in a sample population of undergraduate medical students, who represent a sample conforming to high internet use. In this study, we found that there was a strong positive correlation between negative affect scores and internet addiction test scores. Also, we found that the mean negative affect score of the addictive internet users was significantly higher than that of the non-addictive internet users. Internet users reported having difficulties with academic work, having physical and mental health problems, and having problems in their relationship. This is in accordance with previous studies which have demonstrated a positive and highly significant correlation between the internet addiction scores and negative affect [26,27]. There is ample cross-sectional evidence that negative emotionality is related to substance use-related problems in adolescence [28,29]. This supports the reward-deficiency hypothesis which suggests that those who achieve less satisfaction from natural rewards turn to substances to seek an enhanced stimulation of reward pathway [30]. Internet use provides immediate gratification with minimal delay, mimicking the gratification provided by alcohol or drugs. A high negative affect score may be reflective of a low self-esteem. Self-esteem in the formative years is crucial to the development of personality. Low self-esteem may result from the absence of strong parental or peer support, which can culminate in feelings of inadequacy and worthlessness [31]. Abundant research from personality psychology underlines this and shows that self-directedness (being associated with high self-esteem and the ability to handle one's own life) is negatively correlated with Internet addiction and represents a better predictor for Internet addiction than neuroticism (being linked to emotional instability and negative affect). Low self-directedness is a better predictor for problematic internet [32]. Individuals may resort to the internet as a way of escaping their negative emotions and finding an alternate virtual world in which they are not threatened or challenged

Further, our study also demonstrated a strong correlation between the number of hours of internet use per day and the negative affect score. This can be explained by the fact that individuals with a greater negative affect score resort to the internet in order to change their unpleasant temperament status, to reduce the unbearable anxiety [33]. Repeated use of the internet and spending a considerable amount of time online may be a means of reducing the anxiety that characterizes withdrawal. The Internet acts as a potent and persistent reward experience, resulting in frequent use and dependence, analogous to substance use. This increases the risk of the negative consequences that characterize addiction.

Conclusion

Our study demonstrated a strong correlation between negative affect and internet addiction suggesting the role of affect in internet addiction. Follow up studies to monitor both the negative affect score and the addiction score are recommended, in order to gain more insight with respect to the progression of addiction. Based on the preliminary observations we suggest promoting healthy and safe use of the Internet is vital. Further, educational programs motivating the addicted group about safe Internet use, harm minimization, prevention programs, and the integration of training workshops specializing in internet addiction must be activated and encouraged to address this problem. Education must proceed using the most up to date and appropriate technology available, the dangers of these technologies must be recognized, studied, examined, and interventions developed to maximize the utility of these technologies while minimizing the potential harm to the individual as well as society. Traditionally,

addiction treatment programs for alcoholism and drug abuse have offered patients a mix of treatment approaches. A promising new strategy involves matching patients to interventions specific to their needs. In this same manner, matching which types of Internet addiction respond best to which treatment can increase treatment effectiveness and such treatment matching is likely to increase long-term recovery. By studying the association of internet usage and its effects on human behavior, we can formulate interventions like setting boundaries and detecting early warning signs of underlying psychopathology at the earliest.

Limitation of the Study

The major obstacle that was encountered in this research study was the difficulty in persuading invited students to actually participate in the study activities. The amount of time required, confusion or suspicion as to the nature of the study, learning schedule might have been contributed to the decreased participation. However, further studies are needed to explore the basis of affect and internet addiction in a large sample.

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